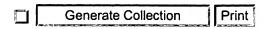
WEST

End of Result Set





L2: Entry 1 of 1

File: USPT

Feb 6, 2001

US-PAT-NO: 6183997

DOCUMENT-IDENTIFIER: US 6183997 B1

TITLE: Polymerase enhancing factor (PEF) extracts PEF protein complexes isolated PEF proteins and methods for purifying and identifying same

DATE-ISSUED: February 6, 2001

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

COUNTRY

Hogrefe; Holly

San Diego

CA

US-CL-CURRENT: 435/91.2; 536/23.7, 536/24.1

CLAIMS:

What is claimed is:

- 1. A non-naturally occurring composition of matter comprising at least one component possessing nucleic acid polymerase enhancing activity selected from the group consisting of: an isolated or purified naturally occurring polymerase enhancing protein obtained from an archeabacteria source; a wholly or partially synthetic protein having the same amino acid sequence as said naturally-occurring protein or analogs thereof possessing polymerase enhancing activity; polymerase-enhancing mixtures of one or more of said naturally occurring or wholly or partially synthetic proteins; polymerase-enhancing protein complexes of one or more of said naturally occurring or wholly or partially synthetic proteins; or polymerase-enhancing partially purified cell extracts containing one or more of said naturally occurring proteins.
- 2. A composition of matter according to claim 1 wherein said component possessing polymerase enhancing activity is a cell extract.
- 3. A composition of matter according to claim 2 wherein said cell extract is from an archeabacteria source.
- $4.\ A$ composition of matter according to claim 3 wherein said cell extract is from Pyrococcus furiosus.
- 5. A composition of matter according to claim 1 wherein said component possessing polymerase enhancing activity is a protein complex.
- 6. A composition of matter according to claim 5 wherein said protein complex is from an archeabacteria source.
- 7. A composition of matter according to claim 6 wherein said protein complex is from Pyrococcus furiosus.
- 8. A composition of matter according to claim 7 wherein said protein complex is P300.
- 9. A composition of matter according to claim 5 wherein said protein complex

comprises a plurality of subunits wherein at least one subunit has a molecular weight of approximately 45 kD.

- 10. A composition of matter according to claim 9 wherein a subunit has a sequence of amino acids at the amino terminal end comprising SEQ ID NO: 46.
- 11. A composition of matter according to claim 9 wherein a subunit has a sequence of amino acids comprising one of SEQ ID NO: 47 or 48.
- 12. A composition of matter according to claim 10 or 11 further comprising a subunit encoded by a DNA having the nucleotide sequence of SEQ ID NO: 18.
- 13. A composition of matter according to claim 1 wherein said component possessing polymerase enhancing activity is a protein.
- 14. A composition of matter according to claim 13 wherein said protein is from an archeabacteria source.
- 15. A composition of matter according to claim 14 wherein said protein is from Pyrococcus furiosus.
- 16. A composition of matter according to claim 15 wherein said protein comprises at least one protein having a molecular weight of approximately 45 kD.
- 17. A composition of matter according to claim 16 wherein said protein is selected from the group consisting of: a protein having a sequence of amino acids at the amino terminal end comprising one of SEQ ID NO: 11; a protein encoded by a nucleic acid having the sequence of SEQ ID NO: 42 or degenerate variants thereof; or a protein having a sequence of amino acids comprising one of SEQ ID NO: 37-39, 41, or 43-48.
- 18. A composition of matter according to claim 1 wherein said component possessing polymerase enhancing activity is a wholly or partially synthetic protein having the same amino acid sequence as said naturally-occurring protein or analogs thereof.
- 19. A composition of matter according to claim 18 wherein said protein has a molecular weight of approximately 45 kD.
- 20. A composition of matter according to claim 19 wherein said protein has a sequence of amino acids at the amino terminal end comprising SEQ ID NO: 3, 11 or 46.
- 21. A composition of matter according to claim 19 wherein said protein has a sequence of amino acids comprising one of SEQ ID NO: 5, 6, 47 or 48.
- 22. A composition of matter according to claim 20 or 21 further comprising a subunit encoded by a DNA having the nucleotide sequence of SEQ ID NO: 18.
- 23. A composition of matter according to claim 1 wherein said component possessing polymerase enhancing activity is a mixture of proteins.
- 24. An isolated or purified DNA comprising a sequence encoding a protein according to said protein of one of claims 16-17.
- 25. An isolated or purified DNA having a sequence selected from the group consisting of: the sequence set forth in SEQ ID NO: 18, degenerate sequences thereof, or DNA sequences hybridizable therewith; the sequence set forth in SEQ ID NO: 42, degenerate sequences thereof, or DNA sequences capable of hybridizing therewith.
- 26. An isolated or purified DNA sequence capable of hybridizing to DNA sequence according to claim 24.
- 27. An isolated or purified DNA sequence capable of hybridizing to DNA sequence

according to claim 20.

- 28. A composition of matter comprising a polymerase-enhancing protein encoded by DNA according to claim 26.
- 29. A composition of matter comprising a polymerase-enhancing protein encoded by DNA according to claim 27.
- 30. A non-naturally occurring mixture of a polymerase-enhancing composition according to claim 1 with one or more DNA polymerases.
- 31. A mixture according to claim 30 wherein at least one of said polymerases is a thermostable DNA polymerase.
- 32. A mixture according to claim 30 wherein at least one of said polymerases is derived from an archeabacteria source.
- 33. A mixture according to claim 32 wherein at least one of said polymerases is a DNA polymerase derived from the Pyrococcus species or the Thermococcus species.
- 34. A mixture according to claim 33 wherein at least one of said polymerases is Pyrococcus sp. JDF3, Pyrococcus sp. GBD, Pyrococcus sp. KOD, Thermococcus or Pyrococcus woesii DNA polymerase.
- 35. A kit for replicating nucleic acids comprising a polymerase-enhancing composition of claim 1 and at least one nucleic acid polymerase.
- 36. A kit according to claim 35 containing at least one recombinant nucleic acid polymerase.
- 37. A kit according to claim 35 or 36 capable of use in a site-directed mutagenesis method.
- 38. A kit according to claim 35 or 36 capable of use in a nucleic acid sequencing method.
- 39. A kit according to claim 35 or 36 capable of use in an amplification reaction.
- 40. An antibody that binds to a composition of matter of claim 1.
- 41. An antibody that binds to a protein having an amino acid sequence comprising one of SEQ ID NO: 19, 37-39, 41, 43-48.